



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
650 Capitol Mall, Suite 5-100  
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JUN 8 2017

Refer to NMFS No: *WCR-2017-7045*

Lisa Gibson  
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Regulatory Division  
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Sacramento District  
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Sacramento, CA 95814-2911

Re: Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response and Fish and Wildlife Coordination Act Recommendations for the Union Pacific Railroad Valley Subdivision Milepost 252.81 Bridge Replacement Project (SPK-2016-00360)

Dear Ms. Gibson:

Thank you for your letter of November 7, 2016, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Union Pacific Railroad Valley Subdivision Milepost 252.81 Bridge Replacement Project.

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA)(16 U.S.C. 1855(b)) for this action

This biological opinion (opinion) is based on the final biological assessment (ESA 2016), received by NMFS on November 1, 2016, and subsequent information received in May 2017. Based on the best available scientific and commercial information, the opinion concludes that the project is not likely to jeopardize the continued existence of the federally listed threatened California Central Valley (CCV) steelhead DPS (*O. mykiss*), and is not likely to destroy or adversely modify their designated critical habitats. NMFS has also included an incidental take statement with reasonable and prudent measures and non-discretionary terms and conditions that are necessary and appropriate to avoid, minimize, or monitor incidental take of listed species associated with the project. The Corps serves as the lead Federal Action Agency for the proposed project.

This letter also transmits NMFS's review of potential effects of the proposed project on essential fish habitat (EFH) for Pacific Coast Salmon, designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation recommendations. This

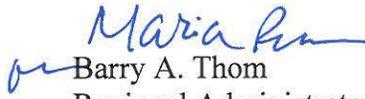


review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. The document concludes that the project will adversely affect the EFH of Pacific Coast Salmon in the Action Area and has included recommendations.

The United States Fish and Wildlife Service has a statutory requirement under section 305(b)(4)(B) of the MSA to submit a detailed written response to NMFS within 30 days of receipt of these conservation recommendations, and 10 days in advance of any action, that includes a description of measures for avoiding, minimizing, or mitigating the impact of the project on EFH (50 CFR 600.920(j)). If unable to complete a final response within 30 days, USFWS should provide an interim written response within 30 days before submitting its final response. In the case of a response that is inconsistent with our recommendations, USFWS must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the proposed project and the measures needed to avoid, minimize, or mitigate such effects.

Please contact Gary Sprague in NMFS' California Central Valley office at (916) 930-3615 or via email at [gary.sprague@noaa.gov](mailto:gary.sprague@noaa.gov) if you have any questions concerning this section 7 consultation, or if you require additional information.

Sincerely,

  
Barry A. Thom  
Regional Administrator

Enclosure

cc: California Central Valley Office  
Division Chron File: 151422-WCR2017-SA00336

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**Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion, and Magnuson-Stevens  
 Fishery Conservation and Management Act Essential Fish Habitat Response, and Fish and  
 Wildlife Coordination Act Recommendations.**

**Union Pacific Railroad Valley Subdivision Milepost 252.81 Bridge Replacement Project**

**NMFS Consultation Number: *WCR-2017-7045***

Action Agency: United States Army Corps of Engineers

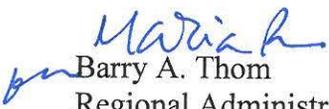
Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely To Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?
California Central Valley steelhead ( <i>Oncorhynchus mykiss</i> )	Threatened	Likely	No	No	No

Fishery Management Plan That Describes EFH in the Project Area	Does Action Have an Adverse Effect on EFH?	Are EFH Conservation Recommendations Provided?
Pacific Coast Salmon	Yes	Yes

**Consultation Conducted By:** National Marine Fisheries Service, West Coast Region

**Issued By:**

  
 Barry A. Thom  
 Regional Administrator

**Date:**

**JUN 8 2017**



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## 1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3 below.

### 1.1 Background

The National Marine Fisheries Service (NMFS) prepared the biological opinion (opinion) and incidental take statement (ITS) portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), and implementing regulations at 50 CFR 402.

We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 600.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available through NMFS' Public Consultation Tracking System <https://pcts.nmfs.noaa.gov/pcts-web/homepage.pcts>. A complete record of this consultation is on file at NMFS' California Central Valley Office.

### 1.2 Consultation History

November 15, 2016, NMFS received the request or formal consultation, including an assessment of biological resources for the proposed project.

May 17, 2017, NMFS, transmitted a letter to the U.S. Army Corps of Engineers (Corps) identifying that NMFS had insufficient information to complete the consultation.

May 19, 2017, Kirstin Skadberg (CH2M) provided a draft response to NMFS' insufficiency letter.

May 19, 2017, a conference call was held to go over the issues identified in NMFS' insufficiency letter and the draft responses. The conference call include representatives from the Corps, Union Pacific Railroad (UPRR), CH2M, and National Marine Fisheries Service (NMFS).

NMFS initiated formal consultation on May 22, 2017.

### 1.3 Proposed Federal Action

“Action” means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02). The UPRR has applied for a permit from the Corps under section 404 of the Clean Water Act. The Union Pacific Railroad Valley

Subdivision Milepost 252.81 Bridge Replacement Project (proposed project) purpose is to replace a railroad crossing over an unnamed stream that is a tributary to Clear Creek in Redding, CA. The UPRR proposes to remove the existing bridge and build a new bridge. The work is proposed to occur between late May 29 and September 1, 2017. The work will include using a culvert to temporarily isolate the stream from the work area, removing the piers supporting the existing bridge, and building a new bridge over the stream.

The existing bridge does not meet UPRR or the Federal Railroad Administration's safety and design standards. UPRR is proposing to remove the existing bridge, and replace it with a 90 foot bridge consisting of three 30 foot spans. The new bridge will have wider spans between the supports than the existing bridge. The proposed project will include placing nets to exclude fish from the work area, the placement of one or two pipes to convey stream flow, and placement of washed cobble over the pipe for access. The fish exclusion nets will then be removed. Then the existing bridge and supports will be removed. The new bridge will be supported by 24 steel H type pilings. Pile driving will occur outside of the ordinary high water, at a time of year when stream flows are expected to be low. Rip-rap will be placed at either end of the bridge. The rip-rap will all be above the ordinary high water mark.

Rock placed around and over the pipe(s) will be clean, washed, cobble of a size suitable for spawning gravel. When the project is completed the stream will be graded back to its original contours and the spawning gravel will be placed adjacent to the stream where it can be recruited to the stream during high flow events.

Under the MSA Federal action means any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by a Federal Agency (50 CFR 600.910).

"Interrelated actions" are those that are part of a larger action and depend on the larger action for their justification. "Interdependent actions" are those that have no independent utility apart from the action under consideration (50 CFR 402.02). No interrelated actions or interdependent actions were identified.

## **2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT**

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each Federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, Federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provides an opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an ITS that specifies the impact of any incidental taking and includes non-discretionary reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

### **2.1 Analytical Approach**

This opinion includes both a jeopardy analysis and/or an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "to jeopardize the continued existence of" a listed species, which is "to engage in an action that would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

This opinion relies on the definition of "destruction or adverse modification," which "means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features" (81 FR 7214).

The designation(s) of critical habitat for (species) use(s) the term primary constituent element (PCE) or essential features. The new critical habitat regulations (81 FR 7414) replace this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a "destruction or adverse modification" analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Identify the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Describe the environmental baseline in the action area.
- Analyze the effects of the proposed action on both species and their habitat using an "exposure-response-risk" approach.

- Describe any cumulative effects in the action area.
- Integrate and synthesize the above factors by: (1) Reviewing the status of the species and critical habitat; and (2) adding the effects of the action, the environmental baseline, and cumulative effects to assess the risk that the proposed action poses to species and critical habitat.
- Reach a conclusion about whether species are jeopardized or critical habitat is adversely modified.
- If necessary, suggest a RPA to the proposed action.

## 2.2 Rangewide Status of the Species and Critical Habitat

This opinion examines the status of each species that would be adversely affected by the proposed action. The status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species' likelihood of both survival and recovery. The species status section also helps to inform the description of the species' current "reproduction, numbers, or distribution" as described in 50 CFR 402.02. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the current function of the essential PBFs that help to form that conservation value.

The following Federally listed species evolutionarily significant units (ESU), distinct population segment (DPS) and designated critical habitat occur in the Action Area and have the potential to be affected by the action (Table 1):

Table 1. ESA Listing History.

<b>Species</b>	<b>ESU or DPS</b>	<b>Original Final FR Listing</b>	<b>Current Final Listing Status</b>	<b>Critical Habitat Designated</b>
Steelhead ( <i>O. mykiss</i> )	California Central Valley DPS	3/19/1998 63 FR 13347 Threatened	1/5/2006 71 FR 834 Threatened	9/2/2005 70 FR 52488

### 2.2.1 California Central Valley Steelhead

Originally listed as threatened (March 19, 1998, 63 FR 13347); reaffirmed as threatened (January 5, 2006, 71 FR 834).

Designated critical habitat (September 2, 2005, 70 FR 52488).

The Federally listed distinct population segment (DPS) of California Central Valley (CCV) steelhead and designated critical habitat for this DPS occurs in the Action Area and may be affected by the proposed project. Detailed information regarding DPS listing and critical habitat designation history, designated critical habitat, DPS life history, and VSP parameters can be

found in the NMFS 2014 Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon, Central Valley Spring-Run Chinook Salmon, and the Distinct Population Segment of California Central Valley Steelhead.

Historic CCV steelhead run sizes are difficult to estimate given the paucity of data, but may have approached one to two million adults annually (McEwan 2001). By the early 1960s the CCV steelhead run size had declined to about 40,000 adults (McEwan 2001). Current abundance data for CCV steelhead is limited to returns to hatcheries and redd surveys conducted on a few rivers. The hatchery data is the most reliable because redd surveys for steelhead are often made difficult by high flows and turbid water usually present during the winter-spring spawning period. CCV steelhead returns to Coleman National Fish Hatchery (NFH) have increased from 2011 to 2014. After hitting a low of only 790 fish in 2010, the last two years, 2013 and 2014, have averaged 2,895 fish. Wild adults counted at the hatchery each year represent a small fraction of overall returns, but their numbers have remained relatively steady, typically 200–300 fish each year. Numbers of wild adults returning each year have ranged from 252 to 610 from 2010 to 2014.

Redd counts are conducted in the American River and in Clear Creek (Shasta County). An average of 143 redds have been counted on the American River from 2002–2015 (data from Hannon *et al.* (2003), Hannon and Deason (2008), Chase (2010)). An average of 178 redds have been counted in Clear Creek from 2001 to 2015 following the removal of Saeltzer Dam, which allowed steelhead access to additional spawning habitat. The Clear Creek redd count data ranges from 100-1023 and indicates an upward trend in abundance since 2006 (USFWS 2015).

The returns of CCV steelhead to the Feather River Hatchery experienced a sharp decrease from 2003 to 2010, with only 679, 312, and 86 fish returning in 2008, 2009 and 2010, respectively. In recent years, however, returns have experienced an increase with 830, 1,797 and 1,505 fish returning in 2012, 2013 and 2014 respectively. Overall, steelhead returns to hatcheries have fluctuated so much from 2001 to 2015 that no clear trend is present.

An estimated 100,000 to 300,000 naturally produced juvenile steelhead are estimated to leave the Central Valley annually, based on rough calculations from sporadic catches in trawl gear (Good *et al.* 2005). Nobriga and Cadrett (2001) used the ratio of adipose fin-clipped (hatchery) to unclipped (wild) steelhead smolt catch ratios in the USFWS Chipps Island trawl from 1998 through 2000 to estimate that about 400,000 to 700,000 steelhead smolts are produced naturally each year in the Central Valley. Trawl data indicate that the level of natural production of steelhead has remained very low since the 2011 status review, suggesting a decline in natural production based on consistent hatchery releases. Catches of CCV steelhead at the fish collection facilities in the southern Delta are another source of information on the production of wild steelhead relative to hatchery steelhead (CDFW 2014 data: [ftp.delta.dfg.ca.gov/salvage](http://ftp.delta.dfg.ca.gov/salvage)). The overall catch of steelhead has declined dramatically since the early 2000s, with an overall average of 2,705 in the last 10 years. The percentage of wild (unclipped) fish in salvage has fluctuated, but has leveled off to an average of 36 percent since a high of 93 percent in 1999.

About 80 percent of the historical spawning and rearing habitat once used by anadromous *O. mykiss* in the Central Valley is now upstream of impassible dams (Lindley *et al.* 2006). Many historical populations of CCV steelhead are entirely above impassable barriers and may persist as resident or adfluvial rainbow trout, although they are presently not considered part of the DPS. Steelhead are well-distributed throughout the Central Valley below the major rim dams (Good *et al.* 2005, 2016a NMFS). Most of the steelhead populations in the Central Valley have a high hatchery component, including Battle Creek (adults intercepted at the Coleman NFH weir), the American River, Feather River, and Mokelumne River.

CCV steelhead abundance and growth rates continue to decline, largely the result of a significant reduction in the amount and diversity of habitats available to these populations (Lindley *et al.* 2006). Recent reductions in population size are supported by genetic analysis (Nielsen *et al.* 2003). Garza and Pearse (2008) analyzed the genetic relationships among CCV steelhead populations and found that unlike the situation in coastal California watersheds, fish below barriers in the Central Valley were often more closely related to below barrier fish from other watersheds than to *O. mykiss* above barriers in the same watershed. This pattern suggests the ancestral genetic structure is still relatively intact above barriers, but may have been altered below barriers by stock transfers. The genetic diversity of CCV steelhead is also compromised by hatchery origin fish, placing the natural population at a high risk of extinction (Lindley *et al.* 2007). Steelhead in the Central Valley historically consisted of both summer-run and winter-run migratory forms. Only winter-run (ocean maturing) steelhead currently are found in California Central Valley rivers and streams as summer-run have been extirpated (McEwan and Jackson 1996, Moyle 2002).

Although CCV steelhead will experience similar effects of climate change as those experienced by Chinook salmon in the Central Valley, as they are also blocked from the vast majority of their historic spawning and rearing habitat, the effects may be even greater in some cases, as juvenile steelhead need to rear in the stream for one to two summers prior to emigrating as smolts. In the Central Valley, summer and fall temperatures below the dams in many streams already exceed the recommended temperatures for optimal growth of juvenile steelhead, which range from 14°C to 19°C (57°F to 66°F). Several studies have found that steelhead require colder water temperatures for spawning and embryo incubation than salmon (McCullough *et al.* 2001). In fact, McCullough *et al.* (2001) recommended an optimal incubation temperature at or below 11°C to 13°C (52°F to 55°F). Successful smoltification in steelhead may be impaired by temperatures above 12°C (54°F), as reported in Richter and Kolmes (2005). As stream temperatures warm due to climate change, the growth rates of juvenile steelhead could increase in some systems that are currently relatively cold, but potentially at the expense of decreased survival due to higher metabolic demands and greater presence and activity of predators. Stream temperatures that are currently marginal for spawning and rearing may become too warm to support wild steelhead populations.

### *Summary of California Central Valley Steelhead DPS viability*

All indications are that natural CCV steelhead have continued to decrease in abundance and in the proportion of natural fish over the past 25 years (Good *et al.* 2005, NMFS 2016a); the long-term trend remains negative. Hatchery production and returns are dominant. Most wild CCV populations are very small and may lack the resiliency to persist for protracted periods if subjected to additional stressors, particularly widespread stressors such as climate change. The genetic diversity of CCV steelhead has likely been impacted by low population sizes and high numbers of hatchery fish relative to wild fish.

In summary, the status of the CCV steelhead DPS appears to have remained unchanged since the 2011 status review, and the DPS is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (NMFS 2016a).

### *Critical Habitat and Physical or Biological Features for California Central Valley Steelhead*

The critical habitat designation for CCV steelhead lists the PBFs (June 28, 2005, 70 FR 37160), which are described in NMFS 2014 Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon, Central Valley Spring-Run Chinook Salmon, and the Distinct Population Segment of California Central Valley Steelhead. In summary, the PBFs include freshwater spawning sites; freshwater rearing sites; freshwater migration corridors; and estuarine areas. The geographical extent of designated critical habitat includes: the Sacramento, Feather, and Yuba rivers, and Deer, Mill, Battle and Antelope creeks in the Sacramento River basin; the San Joaquin River, including its tributaries but excluding the mainstem San Joaquin River above the Merced River confluence; and the waterways of the Delta.

### *Summary of the Value of California Central Valley Steelhead Critical Habitat for the Conservation of the species*

Many of the PBFs of CCV steelhead critical habitat are currently degraded and provide limited high quality habitat. Passage to historical spawning and juvenile rearing habitat has been largely reduced due to construction of dams throughout the Central Valley. Levee construction has also degraded the value for the conservation of the species of freshwater rearing and migration habitat and estuarine areas as riparian vegetation has been removed, reducing habitat complexity, food resources, and resulting in many other ecological effects. Contaminant loading and poor water quality in Central California waterways poses threats to lotic fish, their habitat and food resources. Additionally, due to reduced access to historical habitats, genetic introgression is occurring because naturally-produced fish are interacting with hatchery-produced fish which has the potential to reduce the long-term fitness and survival of this species.

Although the current conditions of CCV steelhead critical habitat are significantly degraded, the spawning habitat, migratory corridors, and rearing habitat that remain in the Sacramento/San Joaquin River watersheds and the Delta are considered to have high intrinsic value for the conservation of the species as they are critical to ongoing recovery effort.

### 2.2.2 Global Climate Change

One factor affecting the range-wide status of CCV steelhead, and aquatic habitat at large is climate change.

The world is about 1.3°F warmer today than a century ago and the latest computer models predict that, without drastic cutbacks in emissions of carbon dioxide and other gases released by the burning of fossil fuels, the average global surface temperature may rise by two or more degrees in the 21st century (IPCC 2007). Much of that increase likely will occur in the oceans, and evidence suggests that the most dramatic changes in ocean temperature are now occurring in the Pacific (Noakes *et al.* 1998). Using objectively analyzed data Liu and Huang (2000) estimated a warming of about 0.9°F per century in the Northern Pacific Ocean.

Sea levels are expected to rise by 0.5 to 1.0 meters in the northeastern Pacific coasts in the next century, mainly due to warmer ocean temperatures, which lead to thermal expansion much the same way that hot air expands. This will cause increased sedimentation, erosion, coastal flooding, and permanent inundation of low-lying natural ecosystems (*e.g.*, salt marsh, riverine, mud flats) affecting listed salmonid PBFs. Increased winter precipitation, decreased snow pack, permafrost degradation, and glacier retreat due to warmer temperatures will cause landslides in unstable mountainous regions and destroy fish and wildlife habitat, including salmon-spawning streams. Glacier reduction could affect the flow and temperature of rivers and streams that depend on glacier water, with negative impacts on fish populations and the habitat that supports them.

Summer droughts along the South Coast and in the interior of the northwest Pacific coastlines will mean decreased stream flow in those areas, decreasing salmonid survival and reducing water supplies in the dry summer season when irrigation and domestic water use are greatest. Global warming may also change the chemical composition of the water that fish inhabit: the amount of oxygen in the water may decline, while pollution, acidity, and salinity levels may increase. This will allow for more invasive species to overtake native fish species and impact predator-prey relationships (Petersen and Kitchell 2001, Stachowicz *et al.* 2002).

In light of the predicted impacts of global warming, the California Central Valley has been modeled to have an increase of between 2 and 7 degrees Celsius by 2100, with a drier hydrology predominated by rainfall rather than snowfall (Dettinger *et al.* 2004, Hayhoe *et al.* 2004, VanRheenen 2004, Stewart *et al.* 2005). This will alter river runoff patterns and transform the tributaries that feed the Central Valley from a spring and summer snowmelt dominated system to a winter rain dominated system. It can be hypothesized that summer temperatures and flow levels will become unsuitable for salmonid survival. The cold snowmelt that furnishes the late spring and early summer runoff will be replaced by warmer precipitation runoff. This will truncate the period of time that suitable cold-water conditions exist downstream of existing reservoirs and dams due to the warmer inflow temperatures to the reservoir from rain runoff. Without the necessary cold water pool developed from melting snow pack filling reservoirs in the spring and early summer, late summer and fall temperatures in rivers downstream of

reservoirs, such as Lake Shasta, could potentially rise above thermal tolerances for juvenile and adult salmonids that must hold and/or rear in the river downstream of the dams over the summer and fall periods.

### **2.3 Action Area**

“Action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).

The Action Area for the proposed project includes the proposed project footprint and the area downstream where construction activities can temporarily decrease water quality, impacting listed fish species. The project will affect the area within the project footprint and the area downstream where construction activities can temporarily decrease water quality, impacting listed fish species. The bridge crossing is located at 40.504772 degrees North latitude, and -121.378286 degrees West longitude. The effects of increased turbidity will attenuate downstream as suspended sediment settles out of the water column. Fish behavior upstream may be affected, however a short distance upstream the stream is in a culvert under a road. Therefore, the Action Area includes the width of the river over the length of the construction area, and the stream 500 feet downstream from the bridge and 50 feet upstream from the bridge.

### **2.4 Environmental Baseline**

The “environmental baseline” includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02). No record of other ESA section 7 consultations were identified in the Action Area.

#### 2.4.1 Historical Usage of the Unnamed Creek

The use of the unnamed creek by adult CCV steelhead is unknown. Recently, a Corps fish biologist identified *O. mykiss* in the unnamed creek in the vicinity of the proposed project. Even if adult CCV steelhead do not spawn in the unnamed creek, juvenile CCV steelhead may move into the creek for rearing.

#### 2.4.2 Existing Conditions

The area in the immediate vicinity of the proposed project has been altered due to the railroad bridge crossing. Two of the bridge supports are within the ordinary high water level of the unnamed stream, and the streambed has had grouted rip-rap placed adjacent to the bridge supports. No changes to the grouted rip-rap are proposed. Rip-rap will be placed at either end of the bridge, above the ordinary high water mark.

### 2.4.3 CCV Steelhead and their Critical Habitat in the Action Area

There is no CCV steelhead designated critical habitat in the Action Area. The closest CCV steelhead designated is at the mouth of the unnamed creek, where it joins with Clear Creek. The mouth of the unnamed creek is approximately 1,900 feet downstream from the railroad bridge.

## **2.5 Effects of the Action**

Under the ESA, “effects of the action” means the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02). Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur.

### 2.5.1 Instream Construction Activities

Juvenile CCV steelhead may be impacted by instream construction activities. Fish are expected to migrate downstream in response to the noise and disturbance caused by these activities. Fish that migrate downstream in response to instream construction activities may endure short term stress from being forced to migrate away from their rearing area and needing to locate a new rearing area. Fish may endure some short term stress from crowding and competition with resident fish for food and habitat. Fish may be subject to increased predation risk while they are locating a new rearing area. However, displaced fish will likely locate to areas downstream that have suitable habitat and low competition. Due to no identified spawning of CCV steelhead in the Action Area, or upstream, only a small number of juvenile steelhead salmon are likely to be displaced by the proposed project. It is not expected that the temporary displacement of fish or the competition they endure will affect the survival chances of individual fish or affect the population based on the size of the area that will be affected and the small number of CCV steelhead likely to be displaced.

Instream construction activities are expected to cause mortality or abundance reduction of benthic aquatic macroinvertebrates within the area where the pipe will be placed. Effects to aquatic macroinvertebrates from coarse sediment smothering will be temporary because post construction the stream will be restored to its original contours and rapid recolonization (about two weeks to two months) is expected (Merz and Chan 2005). Furthermore, downstream drift is expected to temporarily benefit any downstream, drift-feeding organisms, including juvenile salmonids. The benthic macroinvertebrate production within the site is expected to increase when the project is complete. The amount of food available for juvenile salmonids and other native fishes is therefore expected to return to at least to pre-project conditions.

Juvenile CCV steelhead may be present during instream construction activities, and thus subject to the above effects. Because juveniles will be able to retreat to suitable habitat and food resources will only be temporarily impacted, effects of instream construction activities will be minor and are unlikely to result in injury or death. Adult CCV steelhead are not expected to be present during instream construction activities, thus impacts to this life stage of these species is considered improbable.

### 2.5.2 Unintentional Spill of Hazardous Substances

During construction, the potential exists for spills or leakage of toxic substances that could enter the unnamed stream. Refueling, operation, and storage of construction equipment and materials could result in accidental spills of pollutants (e.g., fuels, lubricants, concrete, sealants, and oil). High concentrations of contaminants can cause direct (sublethal to lethal) and indirect effects on fish. Direct effects include mortality from exposure or increased susceptibility to disease that reduces the overall health and survival of the exposed fish. The severity of these effects depends on the contaminant, the concentration, duration of exposure, and sensitivity of the affected life stage. A potential indirect effect of contamination is reduced prey availability; invertebrate prey survival could be reduced following exposure, therefore making food less available for fish. Fish consuming infected prey may also absorb toxins directly. For salmonids, potential direct and indirect effects of reduced water quality during project construction will be addressed by utilization of vegetable-based lubricants and hydraulic fluids in equipment operated in the wet channel, and by implementing the construction site housekeeping measures incorporated in the project SWPPP. These measures include provisions to control erosion and sedimentation, as well as a Spill Prevention and Response Plan to avoid, and if necessary, clean up accidental releases of hazardous materials.

With these best management practices in place, impacts from contaminants are expected to be improbable for juvenile CCV steelhead.

### 2.5.3 Fish Relocation

Prior to the placement of the pipe(s) fish will be removed from the area in which the pipe(s) will be placed. Nets will be placed upstream and downstream of the location of the pipe(s) to exclude fish while the pipe(s) is being placed. Once the pipe is in place, the exclusion nets will be removed. During visits to the site of the proposed project a Corps' biologist identified 40-50 juvenile salmonids in the vicinity of the proposed project. These were all potentially CCV steelhead. Relocation of fish in the vicinity of the proposed project may require capture of these fish. Fish may be adversely affected during relocation through injury and mortalities.

### 2.5.4 Sediment and Turbidity

Construction activities related to restoration actions will temporarily disturb soil and stream bed sediments, resulting in the potential for temporary increases in turbidity and suspended sediments in the Action Area. Turbidity plumes are expected to affect a portion of the channel width and extend up to 500 feet downstream of the site. Construction related increases in sedimentation and siltation above the background level could potentially affect fish species and their habitat by reducing egg and juvenile survival, interfering with feeding activities, causing breakdown of social organization, and reducing primary and secondary productivity. The magnitude of potential effects on fish depends on the timing and extent of sediment loading and flow in the river before, during, and immediately following construction.

High concentrations of suspended sediment can have both direct and indirect effects on salmonids. The severity of these effects depends on the sediment concentration, duration of exposure, and sensitivity of the affected life stage. Based on the types and duration of proposed in-water construction methods, short-term increases in turbidity and suspended sediment may disrupt feeding activities or result in avoidance or displacement of fish from preferred habitat. Juvenile salmonids have been observed to avoid streams that are chronically turbid (Lloyd 1987) or move laterally or downstream to avoid turbidity plumes (Sigler *et al.* 1984). Sigler *et al.* (1984) found that prolonged exposure to turbidities between 25 and 50 nephelometric turbidity units (NTUs) resulted in reduced growth and increased emigration rates of juvenile coho salmon and steelhead compared to controls. These findings are generally attributed to reductions in the ability of salmon to see and capture prey in turbid water (Waters 1995). Chronic exposure to high turbidity and suspended sediment may also affect growth and survival by impairing respiratory function, reducing tolerance to disease and contaminants, and causing physiological stress (Waters 1995). Berg and Northcote (1985) observed changes in social and foraging behavior and increased gill flaring (an indicator of stress) in juvenile coho salmon at moderate turbidity (30-60 NTUs). In this study, behavior returned to normal quickly after turbidity was reduced to lower levels (0-20 NTU).

Any increase in turbidity associated with instream work is likely to be brief and occur only in the vicinity of the site, attenuating downstream as suspended sediment settles out of the water column. Temporary spikes in suspended sediment may result in behavioral avoidance of the site by fish; several studies have documented active avoidance of turbid areas by juvenile and adult salmonids (Bisson and Bilby 1982, Lloyd 1987, Servizi and Martens 1992, Sigler *et al.* 1984).

Individual fish that encounter increased turbidity or sediment concentrations will likely move away from affected areas into suitable surrounding habitat. In-water work will only occur during the beginning and end of the project, this will limit the duration of the turbidity effects. Gravel will be washed to reduce the introduction of fine sediments to the stream.

Juvenile CCV steelhead may be present during instream construction activities, and thus subject to the above effects. However, due to the short duration of a few days, the effects of increased turbidity will be minor and are unlikely to result in injury or death. Adult CCV steelhead are not expected to be present during activities that may increase turbidity.

Sedimentation is known to have lethal and sublethal effects to incubating salmonids eggs by decreasing dissolved oxygen transport between spawning gravel. Sediment also blocks micropores on the surface of incubating eggs, inhibiting oxygen transport and creates an additional oxygen demand through the chemical and biological oxidation of organic material (Kemp *et al.* 2011, Greig *et al.* 2007, Suttle *et al.* 2004). However, due to the location and timing of construction CCV steelhead eggs will not be present, and thus adverse impacts to incubating eggs are not expected to occur.

### 2.5.5 Noise from Pile Driving

NMFS approved criteria for pile driving to avoid injury to fishes is 206 dB peak and 187 dB accumulated sound exposure for fishes greater than 2 grams). The piling that will be used are 14 inch steel H piles. There will be 24 pilings, with 12 being installed within the ordinary high water level. The pilings will all be installed on dry land. Pile driving is expected to be less than 10 strikes per minute. Pile driving is expected to take between 1 and 2 weeks. An impact cushion is not planned to be used.

In one case the Caltrans (2012) Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish identifies sound effects from one project at 10 meters from driving an 14 inch H piling in 6 meters of water as 208 dB peak and 177 dB sound exposure level (SEL). In other examples of H pile driving the peak dB measure ranged from 205 to 212 dB, and the SEL ranged from 172 to 182 dB (H pile, at 10m, in water). In other examples Caltrans (2012) identifies the sound from driving H pilings as 195 dB peak and 170 dB SEL (15 inch H pile, at 10m, in 2-3m of water); and 200 dB peak and 166 dB SEL (H pile, at 10m, in 4m of water). When comparing in water pile driving and land based pile driving, the sound in water from land based pile driving was less. For example:

Table 1. San Joaquin River Impact Pile Driving Sound Measurements

Type of Piling	Size	Location	Distance	Peak dB	SEL dB
Steel Pipe	20 inch	In water, 3-4 m	10 m	208	176
Steel Pipe	20 inch	Land	10 m	198	171

Based on the number and type of piles to be used for the proposed action, the piling driving being in the dry, and the stream in the immediate vicinity of the pile driving being isolated in a pipe, the expected peak and accumulated sound pressures are anticipated to be below NMFS approved criteria for injury to fishes from pile driving activities for fishes greater than 2 grams. Therefore, the potential effects from the sound emanating from the action of pile driving is expected to not reach a level where adverse impacts are expected to occur..

### 2.5.6 Ballast

With the vibration from trains crossing the new bridge ballast under the railroad ties could fall from the new bridge and injure fish in the stream below. The new bridge is designed to retain the ballast and prevent it from falling into the stream. It is improbable that ballast would enter the stream and cause injury or mortality to fish.

### 2.5.7 Critical Habitat

There is no designated CCV steelhead critical habitat within the Action Area. The nearest designated CCV steelhead critical habitat is about 1,900 feet downstream from the proposed project, in Clear Creek. Therefore, no effects to critical habitat associated with the proposed project are expected to occur.

## **2.6 Cumulative Effects**

“Cumulative effects” are those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Some continuing non-Federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult if not impossible to distinguish between the action area’s future environmental conditions caused by global climate change that are properly part of the environmental baseline vs. cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described in the environmental baseline (Section 2.2.2).

NMFS talked to Corps regulatory staff that work in the vicinity of the proposed project, and conducted an online search the Record Searchlight, City of Redding, the Win-River Casino, Redding Rancheria, and Shasta County for proposed activities within the Action Area. NMFS did not find any future activities that were both within the Action Area and did not involve Federal activities.

## **2.7 Integration and Synthesis**

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency’s opinion as to whether the proposed action is likely to: (1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminishes the value of designated or proposed critical habitat for the conservation of the species.

CCV steelhead have experienced significant declines in abundance and available habitat in the California Central Valley relative to historical conditions. The status of the species and critical habitat and environmental baseline sections (2.2 and 2.4) detail the current range-wide status of these ESUs, where the proposed project is to occur. Sections 2.2.2 discusses the vulnerability of listed species and critical habitat to climate change projections in the California Central Valley. In light of the predicted impacts of global warming, it has been hypothesized that summer temperatures and flow levels will become unsuitable for salmonid survival in many parts of the Central Valley.

Cumulative effects that may affect the Action Area include highway work, irrigation conveyance, and increased population growth resulting in urbanization and development of floodplain habitats.

### 2.7.1 Effects of the Proposed Project to Listed Species

The proposed project has the potential to affect juvenile CCV steelhead. The only life stages of CCV steelhead that are expected to be present in the Action Area during construction are juvenile CCV steelhead. Individual juvenile CCV steelhead may be injured or killed when they are captured for relocation outside the construction area. However, the measures proposed will minimize the likelihood of injuries and mortalities to CCV steelhead. Up to 50 juvenile CCV may need to be relocated from the immediate vicinity of the construction activities. During capture and relocation up to 5 individual juvenile CCV steelhead may be injured and another 5 may die.

Juvenile CCV steelhead could be impacted through construction equipment operating in the stream, unintentional spill of hazardous substances, increased turbidity, noise from pile driving, and ballast falling onto fish. With the minimization measures, avoidance, and best management practices included with the proposed project, potential injuries or mortalities associated with these activities are expected to be unlikely to occur.

### 2.7.2 Effects of the Proposed Project to Critical Habitat

There is no designated CCV steelhead critical habitat within the Action Area. Therefore, no effects to critical habitat associated with the proposed project are expected to occur.

### 2.7.3 Survival and Recovery

Existing wild CCV steelhead populations in the Sacramento River basin occur in the upper Sacramento River and its tributaries. Implementation of the proposed project is not expected to have adverse impacts on the survival and recovery of CCV steelhead.

## **2.8 Conclusion**

After reviewing and analyzing the current status of the listed species, the environmental baseline within the action area, the effects of the proposed action, any effects of interrelated and interdependent activities, and cumulative effects, it is NMFS' opinion that the proposed action is not likely to jeopardize the continued existence of CCV steelhead. No critical habitat has been designated or proposed for this species; therefore, none was analyzed.

## **2.9 Incidental Take Statement**

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted

by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

2.9.1 Amount or Extent of Take

In the opinion, NMFS determined that incidental take is reasonably certain to occur as follows: NMFS anticipates incidental take of juvenile CCV steelhead with this railroad bridge proposed project. Specifically, NMFS anticipates that juvenile CCV steelhead may be harassed, captured, injured, or killed as a result of project implementation as they will likely be present in the Action Area during the scheduled work period.

Take of CCV steelhead may occur due capture and relocation, and noise from pile driving. Take is quantified in the table below.

Table 2. Take associated with capture and relocation.

Species	Life Stage	Expected Take in the Form of capture	Expected Take in the Form of Injury	Expected Take in the Form of Mortality
CCV steelhead	Juvenile	50	5	5

2.9.2 Effect of the Take

In the opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

2.9.3 Reasonable and Prudent Measures

“Reasonable and prudent measures” are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

1. Measures will be taken to minimize take associated with capturing and relocating CCV steelhead.
2. The applicant shall prepare and provide NMFS with a report detailing the exposure and take of listed fish species associated with the proposed project, and of sound monitoring associated with the pile driving.

#### 2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the Corps or any applicant must comply with them in order to implement the RPMs (50 CFR 402.14). The Corps or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. The following terms and conditions implement reasonable and prudent measure 1:
  - a. If possible, after the upstream block net is put in place, fish will be herded from the upstream end of the section of the stream to be placed in the pipe(s) to the downstream end, in order to reduce the number of fish that need to be handled.
  - b. Handling of fish should be conducted during the time of day that water temperatures are the coolest, to reduce the chance of fish mortalities.
  
2. The following terms and conditions implement reasonable and prudent measure 2:
  - a. During pile driving sound in the stream and in the water in the pipe will be monitored, if conditions allow. If the water is too shallow for placement of hydrophones, sound monitoring will not occur. If NMFS' criteria for pile driving (206 dB peak and 187 dB accumulated sound exposure for fishes greater than 2 grams) is exceeded, pile driving shall be modified to stay under the NMFS' criteria. This may be done through adding a cushion to the top of the piles during pile driving, reducing the frequency of the hammering, or other modifications of pile driving.
  - b. If possible, monitoring of the noise level from pile driving shall include information about the type and size of pilings, the location of the pilings, the pile driving equipment, the distance from the pile driving to the measurement location, the location of the monitoring, the depth of water at the monitoring location, and any other information pertaining to the transmission of sound to the stream. If the monitoring of the sound from driving the pilings closest to the stream shows compliance with NMFS' sound criteria for pile driving and additional pile driving will be done consistent with conditions during the monitored pile driving, the sound monitoring may be discontinued.
  
3. The following terms and conditions implement reasonable and prudent measure 4:
  - a. The Corps shall require the applicant to submit to NMFS a report describing the species exposure and incidental take resulting from the proposed project, and results from sound monitoring. The report shall be submitted to NMFS within 60 days of project completion. The report should be submitted to the following address:

Maria Rea  
California Central Valley Area Office  
National Marine Fisheries Service  
650 Capitol Mall, Suite 5-100  
Sacramento CA 95814  
Phone: (916) 930-3600  
FAX: (916) 930-3629

## **2.10 Conservation Recommendations**

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

- (1) The Corps should require the applicant to provide a NMFS-approved Worker Environmental Awareness Training Program for construction personnel to be conducted by a NMFS-approved biologist for all construction workers prior to the commencement of construction activities. The program shall provide workers with information on their responsibilities with regard to Federally-listed fish, their critical habitat, an overview of the life-history of all the species, information on take prohibitions, protections under the ESA, and an explanation of terms and conditions identified in this opinion. Written documentation of the training must be submitted to NMFS.
- (2) A report should be submitted to NMFS within 30 days of the completion of training. Completion of this training is consistent with agency requirements set forth in section 7(a)(1).

## **2.11 Reinitiation of Consultation**

This concludes formal consultation for Union Pacific Railroad Valley Subdivision Milepost 252.81 Bridge Replacement project.

As 50 CFR 402.16 states, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect on the listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

## **2.12 “Not Likely to Adversely Affect” Determinations**

The proposed project is not likely to adversely modify CCV steelhead critical habitat, because there is no designated CCV steelhead critical habitat in the Action Area.

### **3. MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT RESPONSE**

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. The MSA (section 3) defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH.

This analysis is based, in part, on the EFH assessment provided by the Corps and descriptions of EFH for Pacific Coast salmon (PFMC 2014) contained in the fishery management plans developed by the PFMC and approved by the Secretary of Commerce.

#### **3.1 Essential Fish Habitat Affected by the Project**

EFH designated under the Pacific Coast Salmon Fisheries Management Plan (FMP) may be affected by the proposed project. EFH is designated under the FMP within the Action Area for all runs of Chinook salmon. Habitat Areas of Particular Concern (HAPCs) that may be either directly or indirectly adversely affected include (1) complex channels and floodplain habitats, (2) thermal refugia and (3) spawning habitat (see descriptions of salmon HAPCs in Appendix A to the Pacific Coast Salmon FMP).

#### **3.2 Adverse Effects on Essential Fish Habitat**

Effects to the HAPCs listed in section 3.1 above may occur through construction activities, and the new bridge structure.

Below is a list of potential adverse effects to EFH HAPCs associated with the proposed project. Affected HAPCs are indicated by the parenthetical number, corresponding to the list in section 3.1:

##### Sedimentation and turbidity

- Reduced habitat complexity (1)

### Removal of riparian vegetation

- Degraded water quality (1, 3)
- Reduction in aquatic macroinvertebrate production (1)

In addition, the function of EFH may be impacted through spills of hazardous materials.

Due to the placement of the stream in a pipe(s) during construction, it is expected that any increase in turbidity in the unnamed stream will be minimal and temporary. Based on pictures provided of the project vicinity, there is very little vegetation in the project area, so removal of vegetation is expected to be minor and not affect HAPCs. With the management practices included in the proposed action, and the due to the existing conditions, the proposed project is not expected to result in adverse effects to EFH.

### **3.3 Essential Fish Habitat Conservation Recommendations**

The following are EFH conservation recommendations for the proposed project:

- (1) The applicant should provide a NMFS-approved Worker Environmental Awareness Training Program for construction personnel to be conducted by a NMFS-approved biologist for all construction workers prior to the commencement of construction activities. The program shall provide workers with information on their responsibilities with regard to Federally-listed fish, their essential fish habitat, an overview of the life-history of all the species, information on take prohibitions, protections under the ESA, and an explanation of terms and conditions identified in this opinion. Written documentation of the training should be submitted to NMFS within 30 days of the completion of training. HAPCs that would benefit from implementation of this training include (1) complex channels and floodplain habitats, (2) thermal refugia and (3) spawning habitat.

Fully implementing this EFH conservation recommendation would protect, by avoiding or minimizing the adverse effects described in section 3.2, designated EFH for Pacific Coast salmon.

Fully implementing these EFH conservation recommendations would protect, by avoiding or minimizing the adverse effects described in section 3.2, above, approximately 0.104 acres of designated EFH for Pacific Coast salmon.

### **3.4 Statutory Response Requirement**

As required by section 305(b)(4)(B) of the MSA, the Corps must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the Federal agency have agreed to use alternative time frames for the Federal agency response. The response must include a description of measures proposed by the agency for avoiding,

minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendations, the Federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

### **3.5 Supplemental Consultation**

The Corps must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations (50 CFR 600.920(l)).

## **4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW**

The Data Quality Act (DQA) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

### **5.1 Utility**

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion are the Corps. Other interested users could include the UPRR. Individual copies of this opinion were provided to the Corps. This opinion will be posted on the Public Consultation Tracking System website (<https://pcts.nmfs.noaa.gov/pcts-web/homepage.pcts>). The format and naming adheres to conventional standards for style.

### **5.2 Integrity**

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

### 5.3 Objectivity

Information Product Category: Natural Resource Plan

**Standards:** This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

**Best Available Information:** This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion and EFH consultation contain more background on information sources and quality.

**Referencing:** All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

**Review Process:** This consultation was drafted by NMFS staff with training in ESA and MSA implementation, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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